

Patent claims

1. A seal for a roller bearing (2), the seal comprising a sealing plate (24a, 24b) which is externally fixed to a rotating hub (9) enclosing the roller bearing (2) and which internally interacts with a rotationally fixed housing (5), on which an inner bearing ring (3) of the roller bearing (2) is positioned, characterized in that the sealing plate (24a, 24b) is fixed at least with a positive interlock to the hub (9), a separate sealing medium being provided between the sealing plate (24a, 24b) and the hub (9), and the sealing plate (24a, 24b) being internally tightly connected by means of an elastic seal (29) or an elastic medium (35) to the housing (5), at least a bracing force of the elastic seal (29) being reduced as the rotational speed of the roller bearing increases.
- 20 2. A seal for a roller bearing, the seal comprising a sealing cap (19a, 19b) of cup-shaped design, which is assigned to a hub (9) externally enclosing the roller bearing (2) and which covers the front face of the roller bearing (2), characterized in that the sealing cap (19a, 19b) is fixed both by positive interlock and by force-locking to the hub (9), a separate elastic sealing medium being used in a fitting space (38), an axial accommodation between the sealing cap (19a, 19b) and the hub (9).
- 35 3. The seal as claimed in claim 1 or 2, intended for a roller bearing (2), which is preferably used for a return pulley, tensioning roller or pulley of a belt drive.
4. The seal as claimed in claim 1 or claim 2, which together with a first seal (17a, 17b) inserted directly between the inner bearing ring (3) and the

outer bearing ring (8) of the roller bearing (2) form a two-stage seal.

5. The seal as claimed in claim 1 or claim 2,  
characterized in that the sealing cap (19a, 19b) and  
the sealing plate (24a, 24b), at least in parts, have  
an externally axially projecting rim (20), the rims  
serving to fix the sealing cap (19a, 19b) and the  
sealing plate (24a, 24b) to the hub by means of force-  
locking.

6. The seal as claimed in claim 5, characterized  
in that the rim (20) has at least one bead (40) facing  
radially inwards, which when fitted snaps positively  
15 into an associated annular groove (41) in the hub (20).

7. The seal as claimed in claim 1 or claim 2,  
characterized in that an elastic seal (23a, 23b) is  
provided between the hub (9) and a radial flank (26) of  
20 the sealing plate (24a, 24b) on the one hand or a rim  
(42) of the sealing cap (19a, 19b) on the other.

8. The seal as claimed in claim 7, characterized  
in that an O-ring or a circular rubber ring is inserted  
25 as seal (23a, 23b) between the hub (9) and the radial  
flank (26) of the sealing plate (24a, 24b) on the one  
hand or the rim (42) of the sealing cap (19a, 19b) on  
the other.

30 9. The seal as claimed in claim 7, characterized  
in that the seal (23a) is arranged in a fitting space  
(38) or accommodation for the sealing cap (19b) or the  
sealing plate (24b) defined radially outwards by the  
rim (20) and radially inwards by an axially projecting  
35 step (37).

10. The seal as claimed in claim 9, characterized  
in that when fitted the seal (23a, 23b) is supported on

a circumferential spur (39) arranged on the rim side and projecting axially into the fitting space (38).

11. The seal as claimed in claim 1 or claim 2,  
5 characterized in that the sealing cap (19a, 19b) and the sealing plate (24a, 24b) are preferably made from a plastic material.

12. The seal as claimed in claim 1, characterized  
10 in that with the sealing plate (24a) fitted the seal (29) is supported by an axially aligned seal lip (30) on a cylindrical section (27) of the housing (5), forming a seal.

15 13. The seal as claimed in claim 12, characterized in that the seal lip (30) of the seal (29) at the end has an outward facing bead (31), which is arranged so that a centrifugal force acting at the center of mass of the bead (31) gives rise to a component force acting 20 clockwise or counterclockwise, depending on the fitted position of the seal lip (30), and reducing the bracing force of the seal lip (30).

14. The seal as claimed in claim 13, characterized  
25 in that when fitted the seal lip (30) of the seal (29) engages in an axial annular groove (32) of the housing (5), a radial outer wall (33) of the annular groove (32) limiting a displacement of the seal lip (30) due to the centrifugal force.

30 15. The seal as claimed in claim 13, characterized in that the seal (29) joined to the elastic seal lip (30) is molded onto a radially inward facing flank (26) of the sealing plate (24a, 24b) or is snapped on 35 forming a positive interlock.

16. The seal as claimed in claim 1, characterized in that the sealing plate (24b) with the radially inward facing flank (26) is guided up to a cylindrical

section (27) of the housing (5) whilst maintaining an annular gap (28) filled by an elastic medium (35).

17. The seal as claimed in claim 1, characterized  
5 in that the radially inward facing flank (26) of the sealing plate (24b) is at the end bent off at right-angles and forms an axially projecting rim (34), which when fitted engages with some free play in an annular groove (32) in the housing (5).

10

18. The seal as claimed in claim 17, characterized in that the axially projecting, cylindrical rim (34) of the sealing plate (24b) engages in the annular groove (32) filled with a lubricant or an elastic medium (35).

15

19. The seal as claimed in claim 18, characterized in that the elastic medium (35) in conjunction with the rim (34) of the sealing plate (24b) forms a seal labyrinth (36).

20

20. The seal as claimed in claim 17, characterized in that the rim (34) of the sealing plate (24b) is internally of cylindrical design shape and externally of conical design shape.

25

21. The seal as claimed in at least one of claims 16 or 18, characterized in that a lubricant KE 2/3 K conforming to DIN 51 502 is preferably introduced into the annular gap (28) or the annular groove (32) as elastic medium (35).

30